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Determination of impact ionization parameters for low gain avalanche detectors produced by HPK

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A set of unirradiated LGADs from the HPK prototype 2 run for HGTD were used to determine the impact ionization parameters for silicon, particularly in the electric field range of ~ 30 V/ μm which is of interest for LGADs. The parameters' dependence on temperature was determined. Their validity on irradiated sensors up to $2.5\text{E}15$ cm^{-2} was also tested.

Primary author: HOWARD, Alissa Shirley-Ann (Jozef Stefan Institute (SI))

Co-authors: HITI, Bojan (Jozef Stefan Institute (SI)); KRAMBERGER, Gregor (Jozef Stefan Institute (SI)); MANDIC, Igor (Jozef Stefan Institute (SI)); CINDRO, Vladimir (Jozef Stefan Institute (SI))

Presenter: HOWARD, Alissa Shirley-Ann (Jozef Stefan Institute (SI))

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